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STATE OF INDIANA

REPORT OF

State Tuberculosis Commission

1906

Commission:

LOREN F. GAGE, CHAIRMAN
CARL WOOD
ALEXANDER G. CAVINS
RICHARD N. ELLIOTT
THEODORE POTTER, M.D , SECRETARY

INDIANAPOLIS:
WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING
1906

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INDIANAPOLIS, November 24, 1906.

HON. J. FRANK HANLY, *Governor of Indiana:*

We submit herewith to you, and through you to the next General Assembly, our report upon the matters referred to us as members of the State Tuberculosis Commission.

Inasmuch as the suppression of this disease has become a great world problem, and this problem is now to be officially taken up in Indiana, we have in this report, following your suggestion, gone into the subject of tuberculosis in such a way as will, we hope, serve to guide the General Assembly in its consideration of the various questions, medical and social, which may arise in connection with its deliberations.

For the personal interest you have shown in this problem now pressing upon our people, and for your constant advice and co-operation in our work, will you accept our sincere thanks.

Respectfully submitted,

LOREN F. GAGE, Chairman.
CARL WOOD.
ALEXANDER G. CAVINS.
RICHARD N. ELLIOTT.
THEODORE POTTER, M. D., Secretary.

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A JOINT RESOLUTION CONCERNING TUBERCULOSIS COMMISSION.

[S. Res. 5. Approved March 6, 1905.]

WHEREAS, Scientific research has demonstrated that consumption is a preventable disease, and, in its early stages, curable; and

WHEREAS, The consumptive deaths in Indiana in 1904 numbered 1,948 males, 2,791 females, invading over 3,000 homes, making over 1,000 widows and over 1,800 orphans under twelve years of age; and

WHEREAS, It is a duty of the State to protect the life, health and happiness of its people; therefore, be it

Resolved by the General Assembly of the State of Indiana, That a Commission of five persons be appointed to investigate the need of a hospital for the treatment of tuberculosis in this State and the work of such institutions in other States; that said Commission be appointed by the Governor and be composed of five members, two of whom shall be members of the Senate holding over, two of whom shall be members of the House of Representatives, and the fifth a practicing physician of prominence in the State. Said Commission shall serve until the close of the next session of the General Assembly, to which it shall report, and that the members shall be paid their actual expenses out of the State treasury.

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REPORT

OF THE

State Tuberculosis Commission.

A great movement is under way throughout the civilized world, having for its object the control of tuberculosis, and the time has come when Indiana should be taking her part in this philanthropic and economic crusade.

The modern crusade against tuberculosis arose and has been most actively pushed and carried to its highest development in Germany, but other European countries and the United States and Canada have been following closely upon Germany's leadership. National and international congresses have been held, bringing together many of the leading physicians and sanitarians to consider and take action upon the pressing problems of the great white plague. Many of the most influential philanthropists, sociologists and statesmen have joined with the medical profession, and the nobility and the crowned heads of Europe, Governors of American States and the President of the United States, have not hesitated to lend their active encouragement and aid to the movement.

The anti-tuberculosis crusade has actively invaded our own country and is rapidly moving from State to State. Societies for combating the disease and aiding the invalid, special dispensaries and hospitals for the consumptive, and public and private sanatoria for the less advanced cases, all are rapidly multiplying.

A campaign of education upon the nature and treatment and prevention of tuberculosis has become universal. Educational tuberculosis exhibitions have been held throughout the country, accompanied by lectures and public addresses and demonstra-

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tions, attracting and instructing many thousands of the people and developing a public sentiment of co-operation in the movement for the suppression of this, our worst disease.

A National Association for the Study and Prevention of Tuberculosis has gathered together the leading students and workers in this field, and its two great meetings at Washington, D. C., with the publications issuing therefrom, have exerted a powerful influence.

The press, recognizing the public interest, is taking an active part in the movement, and many of the leading journals, magazines and reviews have been publishing editorials or articles from the pens of recognized authorities in support of the crusade against tuberculosis.

Private philanthropy is being enlisted in the cause, and American men of wealth are seeing in this direction a great opportunity for liberal gifts. The Phipps Institute, of Philadelphia, privately endowed, is already well organized and at work in the study of tuberculosis, the publication of knowledge concerning it and of the most efficient means of combating it.

These various phases of the anti-tuberculosis movement are being carried on in entire publicity and for the public good. The people are dying by thousands from this disease, and all right-minded men who have or gain any useful knowledge are contributing it freely for the public weal, working in that spirit of high-minded public duty and philanthropy which alone, in such an emergency, is worthy of our manhood.

Now all of these things mean that the world is being awakened to the significance of the modern knowledge of tuberculosis, the seriousness of tuberculosis as a social as well as a medical problem, and the possibilities of treatment and prevention which are open to intelligent, earnest, united, and well-supported effort. And all of these things mean that it is high time for the great State of Indiana to join with her neighbor, Ohio, and with other States in the beneficent contest against tuberculosis, whose successful outcome this twentieth century shall see recorded in letters bold and bright.

Tuberculosis is in large measure a controllable disease. Toward this control the world is rapidly, imperatively, and determinedly moving, and we must now bear our part in the movement.

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We must at the outset recognize and set forth certain facts as a basis for intelligent thought and action. And first, as to the prevalence of the disease:

"Tuberculosis is the most universal scourge of the human race. It prevails more particularly in the large cities and wherever the population is massed together, but it is all too frequent in the open country. One-seventh of all deaths are due to it. In the United States census for 1890, 102,188 deaths were reported to be due to consumption. At a low estimate, one can say that at least 150,000 persons die annually in the United States of some form of tuberculosis."—(Osler.)

"An estimate based on the census report gives the total number of persons in this country infected with tuberculosis as 1,050,000, or 1 in every 60 of the population."—(Vaughn.)

"Among all the infectious, epidemic or pestilential diseases, tuberculosis is the most terrible. In the State of Ohio its victims number about 6,000 annually. It destroys more people in this country than smallpox, plague, yellow fever, diphtheria and scarlet fever combined. During the year 1900, consumption, or tuberculosis of the lungs, caused 109,750 deaths in the United States. Its victims are largely those in the vigorous adult period of life. The deaths from consumption in 1900 were 10.9 per cent. of those from all causes."—(Report of the Ohio State Tuberculosis Commission.)

In our own State the facts are equally ominous. The report of our State Board of Health shows that during 1903 there died in Indiana of tuberculosis 4,392 persons. Of these 4,063 died of those forms of the disease commonly included under the term consumption. And the direct cost of these cases, not including loss from incapacity to work and from the care of the resulting dependents was over $3,000,000. And these terrible figures are annually continuing.

But tuberculosis not only causes this great number of deaths; it is more than correspondingly pre-eminent in the immense total amount of sickness and suffering due to it. Such diseases as diphtheria, scarlet fever, pneumonia, smallpox, and even typhoid fever, last as a rule but a short time, while the average duration

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of illness from fatal or serious tuberculosis is measured by months and years.

An additional seriousness of tuberculosis as a social problem grows out of the fact that it attacks chiefly those in the active middle period of life; strikes down those who are just preparing or just prepared for or just well established in life's work, and that it therefore leaves so many orphans and other dependents behind. The report of the Ohio Tuberculosis Commission shows that of 445 orphans in nine institutions, 24½ per cent. were orphaned through tuberculosis. The statistics of our State Health Board upon these points are worthy of serious study. These statistics show that among the deaths from consumption in 1905, there were 935 mothers between 18 and 40 years of age. There were left 2,598 orphans under 12, and 3,482 homes left fatherless or motherless.

With the increase in numbers and in the concentration of the people in closely associated groups, as in schools, stores, workshops, office buildings, tenement and apartment houses, factories and correctional institutions, and as a result of such concentration, the disease tends to increase. Surely with these facts before us we must recognize in tuberculosis not merely a medical but a great social problem, to be successfully attacked only by the combined action of the medical profession and the public.

In addition to its recognition of tuberculosis as presenting a grave social problem, the present anti-tuberculosis movement is based upon a recognition of the significance of the modern knowledge concerning the cause, the nature, and the manner of propagation of the disease.

Tuberculosis is a specific infectious disease due to certain now well known and understood germs. The history of this discovery is of intense interest to every student of science, and is now matter of common knowledge.

Villemin, of France, in 1866, showed tuberculosis to be an inoculable disease. Cohnheim, of Germany, a few years later set forth clearly its specific infectious character; and Robert Koch placed his name among the immortals of science by announcing and giving freely to the world in 1882 his discovery and demonstration of the specific germs which cause it.

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Of these germs, we know that they are thrown off, often in great numbers, in the material coming from the seat of disease; that they are not given off from the intact body surfaces, external or internal, nor in the expired air, except as the air may accidentally contain particles of debris from the disease; that these germs may retain their life and virulence for a long time, at least for months, under favorable conditions of absence of sunlight; that they do not multiply under any ordinary conditions, except in the bodies of men and animals; and that they may produce the disease in both human beings and in a number of the domestic and semi-domestic animals. We know also, now beyond any question, that without the growth of these germs in the body the disease does not exist. No seeds of corn, no corn. No seeds of wheat, no wheat. No tubercular germ-seeds, no tuberculosis.

Of the disease tuberculosis, we know that it is seldom transmitted by heredity, but that its long supposed heredity and the fact of its prevalence in families are to be explained chiefly by the infection resulting from close association. We know also that the healthy human body, especially after the period of maturity is reached, does not offer very favorable conditions for the development of the disease; and that therefore predisposing factors, hereditary or acquired, chiefly the latter, play a very important role in the implantation of the germs and the development of the disease in the individual. We know, too, that for the disease in an advanced stage there is at present no specific and no great hope of cure. But we also know that for a large proportion of those in whom the disease is detected early, as it may now usually be detected, there is, under the more favorable conditions which the modern anti-tuberculosis movement seeks to bring about, a good hope of a successful contest with it.

The present anti-tuberculosis movement has as its chief object the prevention of tuberculosis, and as its chief basis the increased possibilities of prevention growing out of the modern knowledge of the disease carried into effect upon the principles of co-operative action.

These possibilities of prevention lie in two directions: the control of infection, and the control of some of the most important predisposing factors.

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An enumeration of the factors predisposing to tuberculosis would include an enumeration of most other diseases, with special emphasis upon certain of them, and likewise of all those things included under the term bad hygiene, which tend to weaken the body and undermine its resisting powers But as an abundance of pure air is the best protection to and the best medicine for the lungs and the blood, and an abundance of nourishing food the best agent for building up and maintaining the integrity of the tissues, our chief efforts in the direction of controlling the predisposing factors must be along these lines, especially the former.

We must insist upon the importance of abundance of pure air and the out-door life, especially during the developmental period of life and the earlier years of maturity. And we must insist, as population grows and concentration of men indoors increases, upon the growing importance of close and official supervision of the sanitation of places where people do thus congregate, as we are already beginning to do by our factory inspection laws. This means first of all the sanitation of the homes of the people, with special emphasis upon ventilation and cleanliness. And next it means more strict supervision, with reference to these two things, of such places as schools, public buildings, public conveyances, correctional institutions, factories and workshops, and places of public assemblage. School boards must be impressed, as indeed they are now being more and more impressed, with the importance of the hygiene of school buildings; and the importance of the health of those whom they are instrumental in bringing together and confining in limited spaces must be more and more impressed, officially if necessary, upon the owners of factories, workshops, and places of public assemblage.

Tuberculosis, especially in the larger communities, is becoming more and more distinctly a disease of the poor, the ignorant, and the careless. Close inspection now traces this fact chiefly to defective sanitation in the home and in places of indoor work, with resulting lessened resistance and direct infection.

As to the control of the material agent of infection, modern knowledge clearly points out and loudly calls for increased vigilance. With proper care against exaggeration and misunder-

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standing of the facts, we must keep constantly before the minds of physicians the fact, and must proclaim to the public the doctrine, that tuberculosis is an infectious disease and in large measure a preventable infection. Though the exact time and place and manner of infection be often or usually obscure, in individual cases, owing to the insidious, slowly developing, and often latent course of the disease, we can no longer hide from ourselves nor allow the public to remain in ignorance and unappreciation of the fact that this disease, though invited and aided by many factors, comes primarily by infection.

We must therefore do and enforce everything practicable to insure the safeguarding and destruction of the extruded germs of tuberculosis.

To this end three simple but far-reaching propositions should be emphasized and clearly set forth for the public guidance.

First.—We should as far as possible keep control over tuberculosis excreta by insuring its deposit in definite receptacles. Ordinary cleanliness as well as safety demands the enforcement of this rule.

Second.—All such material should be kept from drying, to insure against its dissemination through the air, especially indoors, under conditions favoring its inhalation and ingestion.

Third.—All such material should before final disposal be deprived of its infectious property by efficient exposure to chemical disinfectants or to heat, or both. A careful and intelligent observance of these three rules will practically insure against danger.

But while insisting upon the necessity of these things and thus emphasizing the danger of infection, we may and should clearly assure the public that the body and the breath of tuberculous persons are not dangerous, that the germs are only in the excreta, and that if the simple and proper precautions be observed by the sufferer and his associates, even close domestic association with a consumptive need not involve alarm. So true is this comforting assurance that we may point to the tuberculosis sanatoria as places of safety for the well. Trudeau, of the Adirondack Cottage Sanatorium, has stated that in nineteen years' experience in that institution no nurse or employe had ever contracted the disease there.

In order that preventive measures may be devised and carried

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out most efficiently, the public sanitary authorities should have knowledge of the places and circumstances of the existence of the disease, at least in its forms most dangerous to the public health.

The time, therefore, we believe has come when all known forms of infection-spreading tuberculosis should be reported to the boards of health. But the purpose and intent of such a measure should be not misunderstood. It is plainly neither necessary nor expedient nor practicable nor humane to enforce upon tubercular individuals and households the same restrictive measures as are enforced in the presence of other communicable diseases, such as scarlet fever, smallpox and diphtheria. But there are instances and circumstances in which the public authorities should exercise their power in isolating helpless, ignorant, or indifferent individuals, or in giving advice, assistance, or command toward the carrying out of preventive measures, including the supervision and disinfection of infected dwellings. The prevailing looseness in the latter respect is a hygienic scandal and a constant menace to the public health.

The first step in the successful contest against any public evil is to know the fact, the nature, the location, and the circumstances of its existence. Only upon this principle and through this knowledge can the boards of health be given the opportunity to devise and carry out such preventive measures as wisdom and experience may indicate for the public good and for the welfare of certain classes of the afflicted.

As a part of this work in the crusade against tuberculosis, the establishment of municipal and State laboratories under the supervision of boards of health is assuming more importance, and the necessity and demand for them, professional and popular, will be more and more felt and asserted. Our own State Laboratory has more than demonstrated its popularity and usefulness.

Second only in importance to its purpose of emphasizing and carrying into effect more successful preventive measures, the modern anti-tuberculosis movement seeks to realize upon the better possibilities of treatment which the knowledge of today opens up.

The first effect of the discoveries of Koch was naturally to stimulate efforts to find an agent which would destroy or stop the

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growth of the germs in the body. The various possible or promising means and methods of introducing antiseptics to kill the germs hidden away in the recesses of the body or in the blocked-up tissues of the lungs, have been subjected to the most elaborate and painstaking experimentation. The more attractive of these treatments, and especially the more superficially plausible ones, are constantly being revived as innovations. From time immemorial they have served and do still, alas, serve the purpose of designing charlatans in playing and profiting upon the anxieties of the afflicted. Against such wicked doings the National Association for the Study and Prevention of Tuberculosis is constantly crying out, and while so doing, it and all other right-minded students of tuberculosis are openly laboring in a public-spirited endeavor to realize upon the knowledge of treatment which we actually possess.

The researches in bacteriology along the lines of preventive or curative inoculations, which have given us such brilliant results in the cure of diphtheria, have not as yet pointed the way clearly to a cure for tuberculosis, though they are opening up promising possibilities. The search for a specific has thus far been fruitless, and this failure constitutes one of the keenest disappointments of modern science.

A second result, and growing somewhat out of this failure, has been a renewed study, with practical ends in view, of the predisposing factors, the natural process of cure which not infrequently occurs, and the possibilities of success by following the indirect attack upon the disease process; in brief, by directing efforts chiefly toward the soil rather than the seed.

A study of the history of medicine shows that from time immemorial this has been the most successful method of treatment of pulmonary tuberculosis. And this method has found its chief expression in what is commonly known as climatic treatment. That there are some special virtues in certain climatic and geographical conditions in the treatment of tuberculosis may well be true in the light of vast experience. Nevertheless, a close review of the whole subject of the climatic treatment revals unmistakably the fact that the chief elements of benefit in a climatic change for tuberculous persons are those which conduce to and favor the outdoor, open-air life. It seems now almost strange that we should have so far overlooked the chief significance of the climatic treat-

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ment, in the face of the everyday experiences of a few weeks of outdoor vacation to the indoor worker.

And this knowledge has led to the further conclusion, enforced now by wide experience, that the larger part of the benefit of so-called climatic treatment may be obtained in any reasonably healthy region, provided the open-air life be adopted under proper direction. And if to this open-air life there be added abundant nourishment, skillful medical care, and careful regulation of the daily life conduct, the advantages of a specially favorable climate without these things will be more than counterbalanced. And this is the most encouraging and cheering therapeutic revelation of the tuberculosis movement of to-day. Fresh air, sunlight, high nutrition, regulation of the daily life of the patient, under rational and constant medical direction; these things in efficient combination make up the best and increasingly successful management of tuberculosis.

It is the increasing experience with this combination of agencies, demonstrating its efficiency, practicability, and economy as compared with a climatic change under the ordinary conditions, which has given rise to the modern institutional treatment of tuberculosis. Such a plan of treatment can, in most cases, evidently be best carried out in a sanatorium devoted to the purpose. And for most of the poor and those in limited circumstances, these sanatoria are best and most practicably located near the homes of those for whom they are to be provided. Out of this conviction has grown the movement, now rapidly spreading over the world, for the establishment of municipal and State as well as private sanatoria. The results of treatment in such sanatoria under proper management are now well known. They surpass by general consent those obtained by any known method.

The purpose of these public sanatoria is both therapeutic and educational. In a large per cent. of the cases brought under treatment reasonably early the disease may be arrested and the sufferer again put upon his feet. But more than this, he is sent out an enthusiastic and trained missionary of the fresh-air doctrines and of the necessity and methods of preventing the spread of the infection. They serve another purpose in that, by removing from the homes, especially of the poor, the source of infection, and that during the period of danger, they lessen the spread of disease.

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Thus they serve the triple purpose of education, prevention, and efficient treatment.

The State provides for the care and treatment of the insane, the deaf and dumb, the blind, the feeble-minded and the epileptic, who might be a burden and a danger to the community. And it does this as a public charity, as a protection, and as an economy to itself. It should do the same for the tuberculous poor. Aside from the alleviation of his distress, it is cheaper for the State to educate the deaf and dumb or the blind man and to restore him to usefulness and self-support, than to lose his earning capacity and leave him a public burden. This also is true of the curable consumptive. As concerns our own State, it may be shown that we are now spending for the mere care until death in our scattered infirmaries and other public institutions, not to speak of the expenditures in private charity, sufficient to maintain a sanatorium which would restore to usefulness a large proportion of its inmates. And what is true of Indiana is true of other States.

Recognizing these facts as to the curative, educational and economic value of such public sanatoria, a number of States have already entered upon this work and are annually extending it as experience proves to them its wisdom. The United States government has established three such sanatoria to provide for the men of the army, the navy, and the marine hospital service. Several Provinces of Canada have done and are doing the same. The neighboring State of Ohio has appropriated the money and is now erecting such a State Sanatorium, the Ohio Commission having reported that "the State of Ohio, in advance of almost all the other States of the Union in the establishment of institutions for the care of its unfortunate afflicted, should not hesitate to provide for the care of its comsumptives by the establishment of sanatoria."

We, too, take a just pride in the advanced position of our State in the care of its unfortunate afflicted and in the beneficent work and manner of conduct of our public charities. Surely we can not long lag behind our neighboring State of Ohio in this economic philanthropy, nor close our eyes to the significance and to the social and medical demands of the great world movement against the arch-enemy, tuberculosis.

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THE WORK OF THE COMMISSION.

Pursuant to the instructions of the joint resolution of the General Assembly, we have undertaken to investigate the tuberculosis situation in Indiana, the needs for a State institution for its treatment, and the results of experience in their conduct elsewhere.

The Commission as a whole, or sub-committees, has inspected a number of the sanatoria in this country, most of which are located in the far West or in the East; in the West because of the great influx of invalids to the Rocky Mountain country; in the East because there the influence of the modern anti-tuberculosis crusade has been earliest felt. In the West we have inspected the United States Marine Hospital Sanatorium at Ft. Bayard, New Mexico, which occupies a former military post; the institutions at Colorado Springs; and at Denver, the National Jewish Hospital for Consumptives, the Agnes Phipps Memorial Sanatorium, the Health Farm of the Denver Jewish Relief Society, and the very interesting and instructive Y. M. C. A. Health Farm. In the East we have visited the group of institutions at Saranac Lake, N. Y., including the famous Adirondack Cottage Sanatorium founded by the devoted and beloved Trudeau, and the New York State Sanatorium at Ray Brook, near Saranac; also the Massachusetts State Sanatorium at Rutland, the oldest State Sanatorium in this country, and several of the municipal sanatoriums operated by public and private philanthropy at New York City.

These institutions, while having the same purpose and operating upon the same general methods, differ much in type and in cost of the material plant. The type of buildings, cost, plan of maintenance, and conduct, necessarily vary according to the conditions to be met. And all have been undergoing a process of evolution based upon experience. A study of these different types and of the evolutionary process which they exhibit has been of great service, enabling us to make recommendations which we believe will lead to both efficiency and economy in our own establishment.

We have propounded to the managers of these institutions certain questions concerning their efficiency, practicability and economy, and their replies, together with our judgment upon them, are embodied in our conclusions.

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WHAT OTHERS ARE DOING.

There are now in the United States about a hundred sanatoria, public, semi-public and private, for the curative treatment of early tuberculosis. Of the State sanatoria now in operation, Massachusetts has one, New York one, Rhode Island one. In several States such sanatoria are just now opening or are in process of construction, including New Jersey, Maryland, Ohio, Michigan, Wisconsin and Minnesota. In several States also the State has either added to a private gift for the founding of a public sanatorium, or contributes a stated sum to an institution under the conduct of non-official boards. Such are Maine, Vermont, Connecticut and Maryland. The oldest and largest State sanatorium is that of Massachusetts, established in 1898, the eight years' experience of which is furnishing a stimulus and guide to others. The experience of these institutions leads to a substantial agreement upon certain points in the matter of maintenance and selection of patients. The National Association for the Study and Prevention of Tuberculosis is bringing together those who work in this field for an exchange of experience and views. We already have the benefit of several such conferences, and may expect from them and from other conferences of boards of charities much helpful guidance in the future development of public anti-tuberculosis work. The recommendations which we make are, we believe, in line with the best opinion growing out of such co-operative efforts.

THE COST OF A STATE SANATORIUM.

When we think of a State institution there usually rises before our minds the picture of extensive buildings and an elaborate plant, costing perhaps many hundreds of thousands of dollars. And most of the great public institutions, for obvious reasons, need such elaborate plants.

But the purpose of a sanatorium for the treatment of early tuberculosis according to modern ideas is not to house but to unhouse people; to bring them back as nearly as possible to nature in their manner of life, while guarding them against that which

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is irrational; to bring to bear upon them the resources of art in aid instead of in antagonism to nature.

The chief aims in the conduct of such an institution are three: To insure the largest amount of fresh air and sunlight; obviously these can best be secured out of doors. To insure the best possible nourishment of the patient, to build up his resisting powers. This comes by the food taken and partly by the spirit in which the digestive organs receive that food. "Good digestion waits on appetite," is an old saying, and healthy appetite, the desire of the body for food, depends much upon respiration, circulation, and elimination of effete material. And so we come back to the practical fact that the fresh-air life of the patient has much to do with his appetite, his digestion, and therefore with his upbuilding. The third aim of such institutions is the regulation of the daily and hourly life of the patient. Fresh air and sunlight are free. Abundant nourishment may be had from simple foods. And the management of the patient depends more upon what is in the mind and heart of the manager than upon buildings and appliances. Buildings and appliances are necessary to good work, but they are only means to ends.

When, therefore, we are planning to spend the public's money to provide for those who can not provide these things for themselves, we must be sure that we begin and continue upon correct views. We must be sure that we do not erect splendid piles of brick and stone, only to find, as some institutions are already finding, that we must depopulate these elaborate and expensive buildings before we can realize our best curative and educational results.

We may therefore remove from our minds at the start the idea that an institution for the treatment of early tuberculosis need be either a very elaborate or a very expensive establishment. The administration building, scientific laboratory, and heating, lighting, drainage, and water plants should be substantial and well equipped. The quarters for the patients need and should be as simple and inexpensive as is consistent with decency and comfort.

During a large part of the year, the patients spend most of their time, day and night, in the open air or in simple pavilions. Such

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inexpensive pavilions, and tents, may be used ad libitum in extending the accommodations, as necessity demands.

By universal experience, the chief item of expense, and the one which, to the uninformed, seems large, is that for food and nursing. This is inevitable in an institution devoted to the curative treatment of the sick, as compared with an eleemosynary institution simply for the humane care of chronic individuals. It is to be remembered also that this expense is incurred for the economic purpose of restoring to useful activity and earning capacity a large proportion of the inmates, and for the further and greater economic purpose of sending out lessons of prevention which shall greatly reduce the loss to the people growing out of the unnecessary prevalence of tuberculosis.

The cost of maintenance per capita per week varies from eight to ten dollars, the average, as shown by the experience of many sanatoriums, being about nine dollars. In our own State, with its agricultural abundance and temperate climate, and under the plan of simplicity which we propose as both efficient and economical, this cost can, we believe, be reduced.

While favorably situated for transportation facilities, a public sanatorium for the treatment of early tuberculosis is best located in the hill country and well removed from the larger cities. The land, therefore, need not be high priced. Liberal supplies of the simple, nourishing, fresh foods, milk, eggs, meat, and vegetables, is, however, a prime necessity. There should also be sufficient area to provide liberal facilities, inducements, and attractions to the open-air life. From four to six hundred acres would meet these necessities.

We believe that the land can be purchased, the necessary buildings erected and equipped, and the whole institution made ready for its work, upon an expenditure of two hundred thousand dollars. Such a sanatorium would provide for between two and three hundred patients, the simplicity of the housing arrangements allowing of considerable elasticity in the number possible to accommodate. In this respect the sanatorium would be somewhat analogous to a military camp.

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WHO SHOULD BE ADMITTED TO THE SANATORIUM.

From the medical standpoint a sanatorium for the treatment of tuberculosis should be limited to the reasonably early cases; that is, to those offering a reasonable prospect of arrest of their disease. Unless this is done the institution fails in its curative and educational purpose and becomes simply a refuge for chronic invalids. Its purpose is not simply to restore the sick to health, but to teach the public the beneficent and economic lessons of treatment and prevention. The care of the chronic invalid is not as expensive as the active curative treatment of the more hopeful cases. If, therefore, the sanatorium becomes filled, as it might easily be, with advanced consumptives, the public will soon discover that it is costing more than it should, is failing to realize upon its curative promises, and that the chronic invalids are crowding out the hopeful and curable cases.

Moreover this limitation to the early cases exerts a powerful educational influence upon physicians and the public toward early diagnosis and the necessary and economical institution of early radical treatment. It exerts a powerful influence upon physicians to detect the disease early and to candidly announce the facts to the patient. It exerts an equally strong and helpful influence upon the public to bravely accept the physician's diagnosis while there is still a good hope of recovery. Thus it tends to do away with the old self-deceiving, self-destroying attitude, growing out of the dread of admitting the truth, and brings both physician and patient into that rational attitude of co-operation which brings the greater satisfaction to the one and the greater prospect of recovery to the other.

From the standpoint of sociology and of public policy and public economy, the question also arises who should be admitted to such a public sanatorium. There are today in Indiana at least twenty-five thousand people suffering from recognizable tuberculosis. Dreadful though these figures are, and eloquently though they call for prompt and liberal action in the face of the fact that tuberculosis is now known to be a curable and preventable disease, it is nevertheless impossible for the State to undertake the care and treatment of all. Some limitations beside the purely medical one must therefore be made, and plainly the poor should have the

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first claim upon public provision. But there are others than the strictly indigent who, confronted by the loss of earning capacity and the necessities of a protracted treatment, are unable to provide for themselves, and to whom, therefore, the State may properly extend aid. The New York State law governing its sanatorium explicitly specifies that the indigent shall have preference, being sent to the sanatorium by the local authorities in charge of the relief of the poor, but that others may, if there be room for them, be admitted upon payment by them of a weekly sum fixed by the board of directors. Medically the admission is limited to incipient cases. Massachusetts, Rhode Island, New Jersey, Michigan and Minnesota have adopted similar rules regarding admissions.

THE RESULTS OF THE SANATORIUM TREATMENT.

This plan of treatment has now been systematically carried out for many years; at first in a few institutions, but during the last twenty years, and especially during the last ten years, in a large number. We therefore now have statistics sufficient to afford a good basis for judgment upon its results. The National Association for the Study and Prevention of Tuberculosis has adopted a plan of nomenclature to indicate the condition of patients at the beginning of treatment and at the time of dismissal. These terms are, for the first class:

Incipient.
Moderately Advanced.
Far Advanced.

For the latter class the terms are:

1. *Improved.*—Constitutional symptoms lessened or absent; physical signs improved or unchanged; cough and expectoration with germs usually present in the sputum.

2. *Arrested.*—Absence of all constitutional symptoms; expectoration and germs may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.

3. *Apparently Cured.*—All constitutional symptoms and ex-

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pectoration with germs absent for a period of three months; the physical signs to be those of a healed disease.

4. *Cured.*—All constitutional symptoms and expectoration with germs absent for a period of two years under ordinary conditions of life.

As regards the last group, it is so difficult to follow the patients in after years that the statistics are as yet too incomplete for final judgment. All the better sanatoriums are, however, now endeavoring to so follow up their patients as to soon make these final statistics more valuable.

Turning now to the eighth annual report of the Massachusetts State Sanatorium, which gives the results of six years' work, and which may serve as a fair example, we find the following:

1. Per cent. of "arrested" and "apparently cured" cases for the years 1899 to 1904:

34 per cent.
42 per cent.
46 per cent.
48 per cent.
49 per cent.
45 per cent.

2. Per cent. of all classes of "improved" cases.

40 per cent.
45 per cent.
48 per cent.
45 per cent.
43 per cent.
48 per cent.

3. Per cent. of "not improved" cases.

26 per cent.
13 per cent.
6 per cent.
7 per cent.
8 per cent.
7 per cent.

Then follows the most significant table of statistics, the lesson of which is too evident for comment:

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4. Percentage of "Incipient Cases" which were "arrested" or "apparently cured."

65 per cent.
73 per cent.
73 per cent.
72 per cent.
73 per cent.
76 per cent.

The latest statistics of the New York State Sanatorium, which is very strict upon the matter of early diagnosis, show that nearly *ninety per cent.* of their "incipient" cases are being "arrested" or "apparently cured." Another interesting development of the work of the New York State Sanatorium is this: Insisting as they do upon receiving only early cases, they find that they can bring most of them to a condition of "arrest" or "apparent cure" so quickly that, within the limits of their financial appropriation they are able to keep the patients long enough to take them off the "rest cure" and put them through a period of active training, by exercise and light work, for a successful return to self-supporting activity.

Premising that only reasonably early cases should be admitted, we may say then regarding the results of the treatment that, according to the degree of advancement of the disease upon admission, from fifty to eighty per cent. may be restored to a condition of comfortable and useful activity. But beside this beneficent curative work, the sanatoriums are demonstrating that tuberculosis is a preventable disease. The inmates learn that they can and how they can prevent the spread of the disease to others. And this doctrine and practice, with the disciplinary lesson of their own experience before them, they teach to others. The strongest influences for early diagnosis, candid recognition of the situation, early rational treatment, and strict preventive measures, which come to the physicians and the public, come through the restored patients. And thus the institution serves its humanitarian and economic purpose.

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THE TUBERCULOSIS SITUATION IN INDIANA.

With the ominous facts regarding the prevalence and mortality of tuberculosis among our people, all are in a general way only too familiar. The State Board of Health, by its invaluable work of collecting vital statistics, is able to give us these facts in exact detail. It is sufficient to present them but briefly; they speak for themselves:

1. During the last five years there died in Indiana, from all causes, an annual average of 35,627 persons, a rate per 100,000 population of 13.8. Of these there died annually of tuberculosis 4,609, a rate per 100,000 population of 179.8.

2. During 1905, there died of tuberculosis of the lungs, between 18 and 40 years of age, 444 fathers and 935 mothers.

3. During this year 2,598 children under 12 years of age were left orphans by this cause alone, and 3,482 homes were made fatherless or motherless.

4. During the last six years the annual average number of deaths from tuberculosis of the lungs was 3,982. Among these the average rate per 100,000 of population was:

For the whole State, 150.3.
For the cities, 176.6.
For the country, 133.4.

Surely these figures impress us with the conviction that if anything can within reason be done to lessen the ravages of this disease it should be done.

PUBLIC SENTIMENT IN INDIANA.

The Tuberculosis Commission was appointed to investigate and report to the General Assembly. We have therefore not thought it our business to engage, as an official body, in a campaign of propagandism. We have, however, endeavored to ascertain how public sentiment stood on this matter. As a result of this investigation we may say:

1. That the medical profession of the State is practically a unit in desiring the establishment of a State Sanatorium for early tuberculosis. For three years the State Medical Association has had a special committee to investigate and report upon the sup-

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pression of tuberculosis, and each year its advocacy of this measure has met with the unanimous approval of the Association. Practically all of the other organized bodies of physicians in the State have taken the same action. Almost every county medical society in the State has also thus expressed itself, and many of them have held special meetings for the purpose of announcing their convictions. The medical profession is plainly calling upon the people to join and support them in the crusade against tuberculosis.

2. The State Board of Health is almost daily learning the necessity and demand for, and has repeatedly expressed its belief in the wisdom of the establishment of a public sanatorium.

3. The Board of State Charities has, at its last two annual conventions, devoted a special session to tuberculosis and recorded its desire and need for a public sanatorium.

4. The charity organizing societies, and many of the associations for the relief of the poor, are earnestly looking forward to the time when they can, with the aid of the public sanatorium, face more hopefully their work among the many tuberculous poor; when they can remove from the infected homes which they visit the early and curable cases of tuberculosis which are now too often doomed from the start.

5. Aside from the danger to the other inmates already sick with other diseases, the situation and arrangement of the general hospitals in the cities and towns of the State make it impossible to properly treat the cases of early tuberculosis. These hospitals are therefore a unit in feeling and expressing the need for a public sanatorium.

6. The dispensaries for the sick poor are constantly calling for a sanatorium. They, more than any other institutions, see and recognize the cases early, but in the absence of such provision they recognize the almost hopeless task before them and protest that their hands are tied. Medicines and correct advice they can give; but when the sick poor ask how and where they can carry out this advice, they are compelled to give a disheartening answer.

Like hunted animals at bay, the afflicted, being warned, seek a refuge, and in the great State of Indiana find none. Their cry is coming up from every city, town, and hamlet: "Help, or we perish!" Shall we not hear their cry?

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RECOMMENDATIONS OF THE COMMISSION.

1. We therefore recommend that there be established as soon as possible an Indiana State Sanatorium for the treatment of early tuberculosis.

2. That in this institution the poor have preference; but that others, if there is room for them, be admitted under conditions laid down by the Governing Board of the Sanatorium.

3. That a tract of land of not less than five hundred acres be secured for this purpose.

4. That, to meet the pressing necessity and emergency, a sufficient sum be appropriated by the General Assembly to prepare the institution for its actual work, this sum to be not less than two hundred thousand dollars.

5. That an annual appropriation of twenty-five thousand dollars be made, to cover the cost of maintenance and to become available when the sanatorium is officially declared ready to receive patients.

6. That a Commission be appointed to purchase the land, supervise the erection and equipment of the buildings, appoint a resident Medical Director, and in general prepare the sanatorium for the reception of patients.

7. That the law establishing this State Sanatorium shall make it the duty of the Governing Board and the Medical Director to use all practicable means to make the institution and its work serve the advancement and public dissemination of knowledge upon the nature and treatment and prevention of tuberculosis.

8. While the Commission was appointed to consider the question of a State institution for the treatment of tuberculosis, we can not, as the result of our studies, overlook the greater importance and possibilities of prevention. We would therefore recommend that, as a supplement to the curative work of the State Sanatorium, the General Assembly pass a stringent law specially directed toward the prevention of this disease among our people.

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CONCLUSION.

In closing this report, the members of the Commission would briefly state some conclusions upon which we are agreed and which are left as deep impressions resulting from our experiences and studies.

1. The sanatorium plan of treatment has decided advantages over any other for most cases of early tuberculosis.

2. This plan does not require very expensive buildings nor a very elaborate plant, provided the chief purposes of the plan are kept in view.

3. The method and skill of the management are of more importance than material equipment.

4. The great majority of the patients easily, cheerfully, and quickly fall into line with the regulations and life of a well-managed sanatorium, just as do the great majority of students in any educational institution. And such a sanatorium is, in its work and its influences, an educational institution.

5. A notable spirit of cheerfulness and hopefulness prevails in a well-conducted sanatorium for early tuberculosis. Those who have preconceived views to the contrary would soon find such views dissipated by visits to these places.

6. It was the universally expressed belief by the medical officers of the sanatoria which we visited that at least approximately good results could be got by this method anywhere and in any reasonably healthy region. That this is true has now been sufficiently demonstrated in many places.

7. We were everywhere impressed by the emphasis put upon the educational value of these sanatoria in the crusade against tuberculosis. Visitors are constantly learning the lessons, and the patients go out from them as missionaries of their new and cheering doctrines.

8. These sanatoria are not a menace nor an objection to their surroundings. On the contrary, they have been, without exception, a benefit. In every instance, as the years pass, they have lessened the prevalence of tuberculosis among the resident population in the immediate vicinity.

9. Everywhere and always in these institutions tuberculosis is emphasized as an infectious disease. The most stringent pre-

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cautions are therefore taken against the spread of this infection. These measures, very simple and easily practicable when understood, practically insure against danger. The inmates evidently feel it so, because they make it so.

We have found ourselves almost unconsciously changing from the older views of this disease. For no one can see the things which we have seen and retain the old chilling, fatuous, hopeless view, that the continued prevalence and spread of tuberculosis is an inevitable plague to which our race must continue to pay its awful tribute of flesh and blood. An increasing sense of mutual responsibility, an enlightened view of public economy, the light of science, and the spirit of philanthropy, will stay the progress of the great white plague.

The morning light is breaking;
The darkness disappears!

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APPENDIX.

As an appendix to this report we attach a diagram of the proposed Maryland State Hospital for Tuberculosis, together with certain explanations concerning it by the Maryland Tuberculosis Commission.

These will, we believe, be of much practical value, the one as an illustration of the design of a tuberculosis hospital, the others furnishing a fairly definite and reliable exhibit of the general plans, purposes and cost of such an institution.

After a careful study of plans of existing institutions, the Commission would recommend a type of building for the accommodation of patients which it believes promises the greatest economy of construction and at the same time secures the maximum amount of fresh air, sunlight and ventilation.

The plan recommended comprises:

1. An administration building.
2. A dining hall with a capacity for 100 to 150 persons, situated in the rear of the main building and connected with it by a short gallery.
3. A kitchen building with sleeping rooms for the domestics on the floor above.
4. The patients' accommodations, which consist of separate pavilions, male and female, occupying the opposite sides of the main building, forming an east and west wing and thereby gaining southern exposure.

In regard to the approximate cost of such a set of buildings, our architects are unable to make a positive estimate without going into the details of construction and finish of the buildings as shown in the accompanying plan. They have, however, submitted a rough estimate, stating that the scheme of the first part proposed, namely the administration building, one dining room and kitchen with two wings accommodating 64 patients, will amount, as a

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whole, to from $80,000 to $85,000, the cost of the administration building being about $33,000, that of the dining room and kitchen $33,000, while the pavilion will cost about $14,000.

A more complete description of an institution such as the Commission deems most fitting for the immediate wants of the State of Maryland accompanies the appended plan.

Cost of Maintenance. The amount which the State will be called upon to contribute toward the maintenance of such an institution would, of course, depend entirely upon the policy that may be adopted for the reception of patients. If the State should decide to accept all patients as presumably indigent, regardless of their true financial condition, and thereby assume the whole cost of their stay in the sanatorium, the expense of such a plan would be considerable, but if the State adopts a plan similar to that in use at the Massachusetts State Sanatorium, where a charge of a uniform rate of $4 a week is made against every patient, the cost of maintenance, as may easily be seen, will be considerably reduced. It might be well to fix the charge later at a figure found to be one-half what it actually costs the institution per patient per week. In exceptional cases especially worthy or in unusually suitable cases, it might be well to provide that such individuals could be sent to the institution upon the order of the State Tuberculosis Commission or Board of Managers of the Sanatorium, wholly at the expense of the State, after a careful investigation had been made of their finances.

The Commission has attempted to furnish some idea of the average cost per patient in institutions such as we have proposed to erect. The cost per patient per day at the Massachusetts State Sanatorium at Rutland has proven to be $1.42. The cost at the Adirondack Cottage Sanatorium at Saranac Lake is found to be about the same. The cost at the Eudowood Sanatorium, by the most careful and economical administration, has been $1.10 per day. The Commission would advise that the average cost per patient per day would be approximately $1.25. Taking the total number of hospital days in an institution of the capacity that we have advocated, presumably running at full capacity, as 22,630, the total cost would not be over $30,000 per annum; or if the rule above suggested of charging each patient half rates should be adopted, $15,000. This, in all probability, is too conservative an

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estimate, as many extras will always develop in the management of such an institution which cannot be foreseen in a report of this kind. But your Commission is of the opinion that the cost to the State should not exceed $25,000 per annum. This sum is not a large one, less than many of the annual appropriations now made for other objects, while the investment from every point of view would be a paying one, second to none other in which the State is interested.

Plans and Description of the Proposed Buildings. The plan adopted comprises:

(a) An administration building, containing public reception rooms, doctors' and nurses' offices, examination rooms, a pharmacy and a library. The basement of this building contains general store-rooms, heating apparatus, cold-storage plant and mortuary. The second floor is given up to sleeping quarters for the superintendent and his staff, with proper toilet accommodations. The third floor of the main building is devoted entirely to an infirmary for febrile cases and those suffering from unforeseen complications or intercurrent disorders, with quarters for nurses and attendants upon such cases. A large laboratory for clinical work and scientific research is also provided for on this floor.

(b) In the rear of the administration building is the dining hall with a seating capacity for about 150 persons, and on the second floor of this building are quarters for the nurses and orderlies. The dining hall is connected with the patients' quarters and the administration building by two enclosed galleries, which enable the patients to go from their sleeping quarters to the dining hall in inclement weather without passing through the administration building.

(c) In the rear of the dining hall is placed the kitchen building, with necessary serving rooms, etc., and sleeping rooms for domestics on the floor above. The whole scheme is so arranged and disposed that with this kitchen building as an approximately central point additional and similar pavilion and dining room accommodations may be arranged in the future, so that this domestic service building may be utilized for the whole. This will avoid the expense of erecting and maintaining new kitchen buildings.

(d) The patients' accommodations consist of separate pavil-

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ions—male and female occupying opposite sides of the main building—forming east and west wings (marked A, B, C, D, E and F), and thereby gaining southern exposure. Each wing is built upon the "pavilion" plan, being entirely open in front, with the sides and backs so arranged on hinges as to make it possible to open up three sides of the building, placing the patients practically in the open air. Each wing has a capacity for thirty-two patients, and may be subdivided into two smaller pavilions, with a capacity for sixteen each, thereby ensuring as great privacy as this type of building will allow. For each subdivision with accommodation for sixteen patients a recreation parlor or solarium is provided in which the patients may spend the time they are allowed to be indoors. In the rear of these parlors is a large locker room, fitted with separate lockers for each individual, and in the end of this room are two smaller rooms containing necessary shower baths and toilet equipment. The recreation parlor and locker rooms are comfortably heated, but the main pavilions, in which the patients spend the greater part of their days and nights, are not heated at all. Canvas drop curtains in front protect the patients from wind and rain, and in the winter time sliding glass doors may be substituted for the canvas curtains, if the weather warrants.

The choice of building material is not finally made. The architects have suggested that the administration building should be of brick or concrete; the same would be desirable for dining room and kitchen building, but it is not absolutely necessary if economy must be considered. In that case they, as well as the pavilions, may be of frame construction, but the latter are to be treated on the interior with some impervious, hard and smooth wall finish. In the estimate as given all buildings, except the administration building, are of frame construction. These plans are so arranged that additional pavilions, C and D, as shown on the scheme, may be added at any time as the need arises.

As stated in a previous section of the report, it is proposed that the buildings shall occupy the southern slope of a hill in such a manner that pavilions C and D may be upon a level sufficiently above pavilions A and B to allow a wholly open and unimpeded exposure. In view of the fact that a large percentage of the State's indigent consumptives belongs to the colored race, provision has been made in the scheme for a complete reduplication of the

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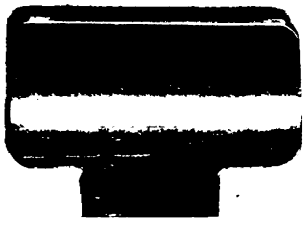
two main pavilions with separate dining hall to be built in the rear of the kitchen at a future date if such a measure be deemed desirable. None of these proposed additions, however (comprising additional dining room and pavilions C, D, E and F), have been included in the estimate.

As has been pointed out in the preliminary remarks, this plan provides for solid and permanent central quarters for which the main outlay will be required. About this central nucleus new pavilions of frame construction for the accommodation of patients can be added at a limited expense. The Commission, however, would advise that the number of patients to be provided for at a single institution should not exceed 250.



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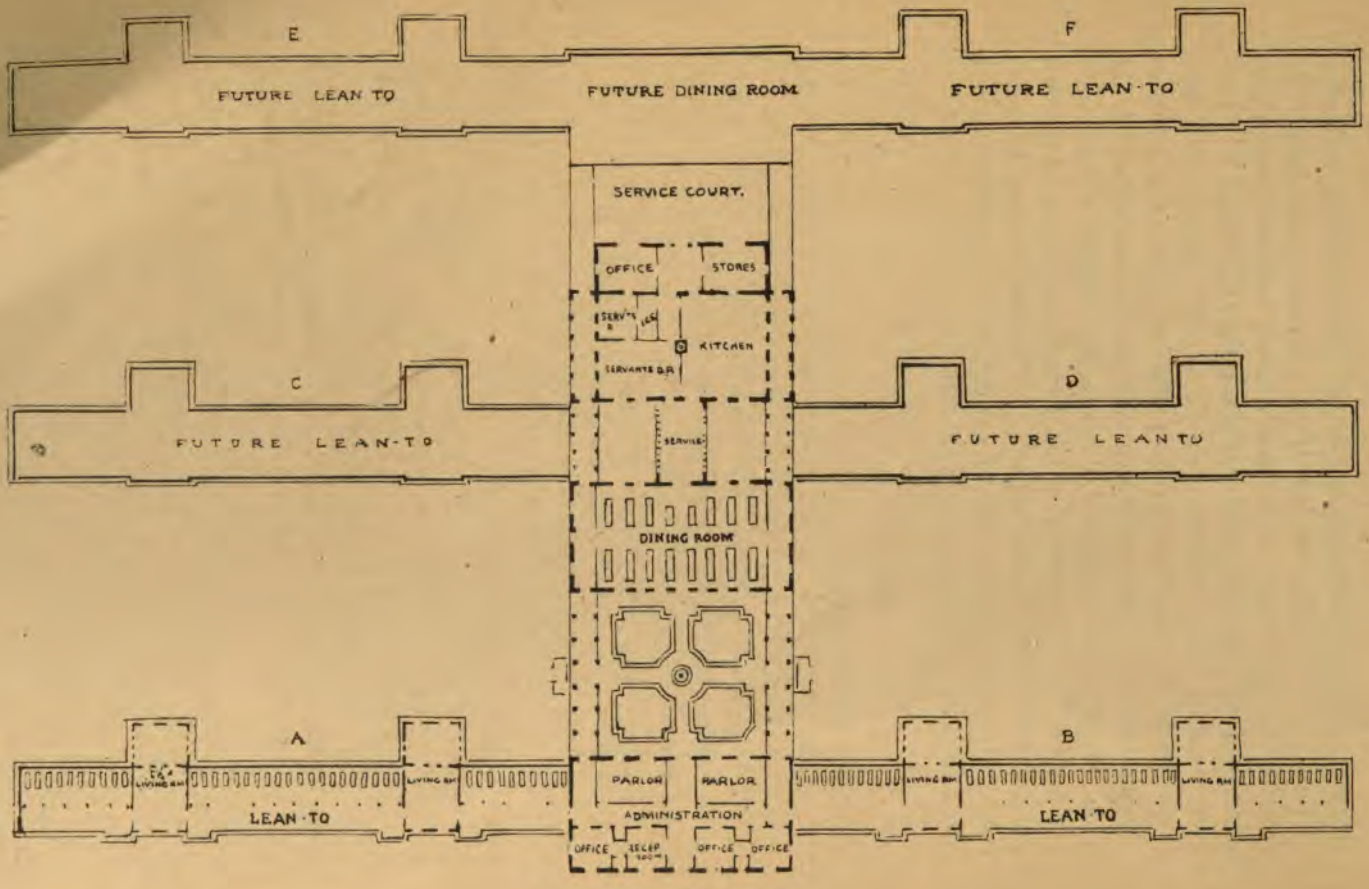

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